Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1-29. (Canceled).

30. (Currently Amended) A system for analysis of one or more biomolecules, comprising:

(a) a microdevice comprised of (i) a substrate~~;~~, (ii) a separation channel formed in said substrate, and (iii) a readable and rewritable memory integrated into said substrate, with said memory being adapted for storing binary coded information;

(b) means for causing at least a portion of said one or more biomolecules to migrate along said separation channel, thereby separating said one or more biomolecules; ~~and~~

(c) information stored in said memory about a character or a sequence of said one or more biomolecules; and

(d) a reader-writer unit configured to write said information to the readable and rewriteable memory.

31. (Previously Presented) The system of claim 30, wherein said substrate comprises a plate, wafer, chip, slide, or disc.

32. (Previously Presented) The system of claim 30, wherein said means for causing at least a portion of said one or more biomolecules to migrate along said separation channel comprises an electric field.

33. (Previously Presented) The system of claim 32, further comprising one or more electrodes each capable of being connected to a power source, the one or more electrodes being disposed with respect to at least one of said separation channels for generating said electric field along at least a portion thereof.

34. (Previously Presented) The system of claim 30, wherein said means for causing at least a portion of said one or more biomolecules to migrate along said separation channel comprises a centrifugal force.

35. (Previously Presented) The system of claim 34, wherein said microdevice is a spinning-disc microdevice.

36. (Currently Amended) The system of claim 35, wherein said readable and rewriteable memory is an optical memory.

37. (Previously Presented) The system of claim 30, wherein the microdevice comprises a plurality of separation channels and said separation channels are non-intersecting.

38. (Currently Amended) The system of claim 30, wherein the readable and rewritable memory is permanently affixed to the substrate.

39. (Currently Amended) The system of claim 30, wherein the readable and rewritable memory comprises at least one of an integrated circuit memory, an optical memory, a thin film semiconductor memory, a ferromagnetic memory, a molecular memory, and a biomolecular memory.

40. (Currently Amended) The system of claim 30, wherein said readable and rewriteable memory includes a storage capacity of at least 1 megabyte.

41. (Previously Presented) The system of claim 30, further comprising a detector in optical communication with at least a region of the separation channel.

42. (Previously Presented) The system of claim 30, further comprising a temperature-control device adapted to modulate the temperature of at least a portion of said substrate.

43. (Currently Amended) A system for the analysis of one or more biomolecules, comprising:

(a) a substrate;

(b) an array of polynucleotides supported by said substrate;

(c) a readable and rewritable memory integrated into said substrate, with said memory being adapted for storing binary coded information; and

(d) information stored in said memory about a character or a sequence of said one or more biomolecules; and

(e) a reader-writer unit configured to write said information to the readable and rewriteable memory.

44. (Previously Presented) The system of claim 43, further comprising a temperature-control device adapted to modulate the temperature of at least a portion of said substrate.

45. (Previously Presented) The system of claim 43, further comprising a detector in optical communication with at least a portion of said substrate.

46-48. (Canceled).

49. (Currently Amended) A system for analysis of one or more biomolecules, comprising:

(a) a microdevice comprised of (i) a substrate~~;~~, (ii) a separation channel formed in said substrate, and (iii) a readable and rewritable memory integrated into said substrate, with said memory being adapted for storing binary coded information;

(b) means for causing at least a portion of said one or more biomolecules to migrate along said separation channel, thereby separating said one or more biomolecules; ~~and~~

(c) machine-readable code, executable by a computer, stored in said memory; and

(d) a reader-writer unit configured to write information to the readable and rewriteable memory.

50-54. (Canceled).

55. (Currently Amended) A system for analysis of one or more biomolecules, comprising:

(a) a microdevice comprised of (i) a substrate~~;~~, (ii) a separation channel formed in said substrate, and (iii) a readable and rewritable memory integrated into said substrate, with said memory being adapted for storing binary coded information;

(b) means for causing at least a portion of said one or more biomolecules to migrate along said separation channel, thereby separating said one or more biomolecules; ~~and~~

(c) a sample tracking device capable of storing information in said memory about a character or a sequence of said one or more biomolecules

(d) a reader-writer unit configured to write said information to the readable and rewriteable memory.

56. (Currently Amended) A system for the analysis of one or more biomolecules, comprising:

(a) a substrate;

(b) an array of polynucleotides supported by said substrate;

(c) a readable and rewritable memory integrated into said substrate, with said memory being adapted for storing binary coded information; ~~and~~

(d) a sample tracking device capable of storing information in said memory about a character or a sequence of said one or more biomolecules; and

(e) a reader-writer unit configured to write said information to the readable and rewriteable memory.